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Class 12 – Biology

Chapter 7 – Human Health and Disease

What Is Health?

In simple terms, Health can be defined as being free from all diseases and infections. According to the World Health Organization (WHO), health is not only the absence of disease or illness. It is a state of an active and energetic condition, including physical, mental, and social well-being. A balanced diet and regular exercise play an important role in maintaining the good health of an individual. There are many factors which affect health, such as:

- Poorly balanced diet
- Genetic disorders
- Stress and anxiety
- Infection from pathogens
- Intake of unhealthy and unhygienic food
- Lack of exercise and other physical activities

To maintain good health, an individual should include a healthy and balanced diet and maintain personal hygiene along with regular exercise and other physical activities. Everyone should be aware of the different types of diseases and their effects.

What Are Diseases?

A disease is an abnormal condition affecting a healthy living organism. It is broadly divided into infectious and non-infectious.

Infectious diseases- These diseases are caused by the pathogens, such as bacteria, viruses, fungi, and parasites and can be easily transmitted from one person to another; hence it is also known as a contagious or communicable disease. Common Cold, Tuberculosis, flu, ringworm, and malaria are some examples of infectious diseases.

Non-infectious diseases- Diseases which cannot be transmitted from one person to another are called non-infectious disease, it is also known as non-communicable disease. These diseases can be either caused by genetic disorders, unhealthy diets, lack of physical activity and a few environmental factors.

Some Common Diseases in Humans

- A pathogenic bacterium known as *Salmonella typhi* is known to cause typhoid in humans. This fever can be confirmed by the Widal test.
- Pneumonia is caused by *Streptococcus pneumoniae* and *Hemophilus influenzae*.
- Rhinovirus, a group of viruses, is known to cause one of the most infectious ailments in humans, cold.
- Plasmodium, a small protozoan, causes malaria. Another protozoan, *Entamoeba histolytica*, causes amoebiasis (amoebic dysentery).
- *Ascaris* (an intestinal parasite) causes ascariasis.
- *Wuchereria*, the filarial worm, causes filariasis or elephantiasis.

Immunity

Immunity is defined as the ability of the body to protect, defend and fight against invading pathogens like bacteria, viruses, and other foreign bodies and toxic substances. There are two types of immunity.

- Innate immunity – non-specific defence type of immunity present at the time of birth achieved by the provision of 4 barrier types – the physical barrier, physiological barrier, cellular barrier, and cytokine barrier.
- Acquired immunity – pathogen-specific immunity that is characterized by memory.

Active and Passive Immunity

Active immunity is where the host produces antibodies in the form of dead or living microbes when it is exposed to antigens. It is a slow process, taking time to provide its full effective response. Passive immunity, on the other hand, is the immunity where ready-made antibodies are given directly to protect the body against any foreign agents.

AIDS

- Acquired Immuno-Deficiency Syndrome is caused by HIV (Human Immunodeficiency Virus), a member of the retrovirus group.
- It is generally transmitted through sexual contact with an infected person, blood transfusion with contaminated blood and its products, through the share of infected needles, from the infected mother to her child through the placenta. ELISA (Enzyme-linked immunosorbent assay) is the diagnostic test for AIDS.



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